

3. Thrust protection as shown on plans in the standard details shall consist of concrete thrust blocks against undisturbed earth. Approved mechanical joint restraint systems may be required for ductile iron and PVC C-900 pipe. Hydrant valves shall be installed with hydrant tees. The hydrant must be protected from thrust by approved mechanical joint restraints and concrete thrust blocks.
4. Where valves are placed for future water line extensions, valves are to be restrained to the fitting and a minimum 20' length of pipe shall be installed past the valve except where calculations or local conditions indicate more pipe is required to provide adequate restraint. Dead-end lines shall be provided with a flushing hydrant or fire hydrant whichever is practical. Approved mechanical joint restraint systems are to be used as required to provide adequate retention of the pipe and valve when thrust blocks cannot be used.

HYDRAULIC DESIGN FOR WATER LINES

Water distribution systems shall be designed to provide adequate flow and pressure for both domestic supply and fire flow based on sound hydraulic analysis. Design shall be based on a maximum flow velocity at peak flows (excluding fire flow) of 5 feet per second and a Hazen-Williams "C" Value of 120. Engineer shall be required to comply with the procedures as outlined in Appendix 14.

The water distribution system and any extensions thereto shall be designed to supply the demands of all customers while maintaining 20 psi at maximum day plus fire flow or peak hour domestic, whichever is greater.

Design of the water system shall generally be such as to maintain 40 psi at maximum day demand. When 40 psi cannot be maintained, the engineer shall be responsible for coordinating with the Utilities Department to investigate alternatives in order to provide 40 psi. Designs providing less than 40 psi will be evaluated on an individual basis.

Also, the design of the water line should be such that a velocity of 2.5 f.p.s. can be maintained at blowoff devices (flushing hydrants) and at hydrants for proper flushing.

FIRE PROTECTION

Typical Plan View of Proposed 2" or Smaller Fire Line Systems for <u>Non</u> Single Family Residential (with Domestic Service Line)	FIR-01 Sht. 1 of 2
Typical Plan View of Proposed 2" or Smaller Fire Line Systems for <u>Non</u> Single Family Residential (without Domestic Service Line)	FIR-01 Sht. 2 of 2
4" Supply for 2" Fireline for New Water Main	FIR-01A
Typical Plan View of Proposed 2" or Smaller Single Family Residential Fire Line Systems (with Domestic Service Line)	FIR-01B NFPA 13D (1 of 2)
Typical Plan View of Proposed 2" or Smaller Single Family Residential Fire Line Systems (without Domestic Service Line)	FIR-01B NFPA 13D (2 of 2)
2" or Smaller Double Check Assembly and Vault	FIR-02
3" or Larger Double Check Assembly and Vault (Sheets 1, 2 & 3)	FIR-03
Typical Fire Hydrant Detail	FIR-04

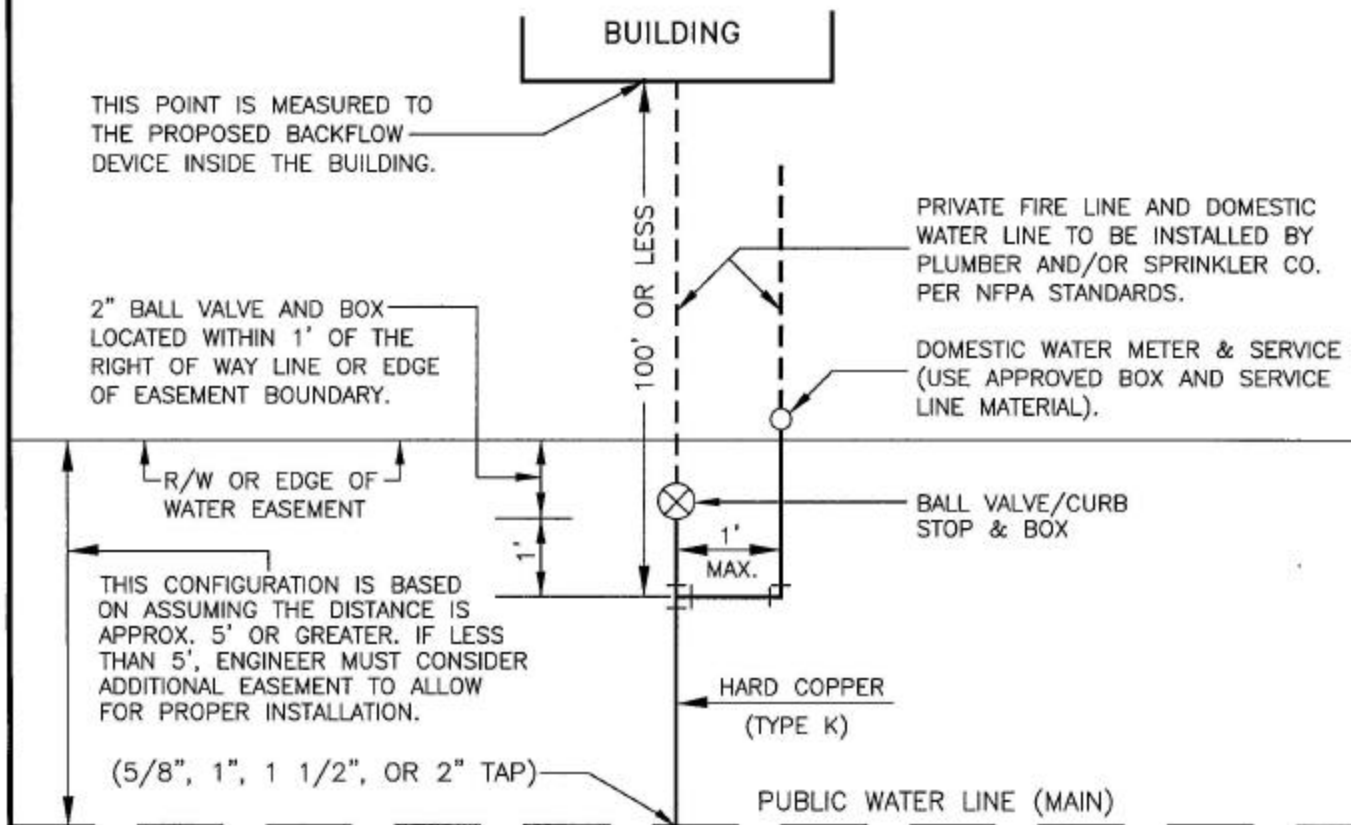
MANHOLES

Manhole Sizing and Minimum Angle Table (Sheets 1 & 2)	MAN-01
Standard Precast Concrete Manhole Sewers 8" to 24"	MAN-02
60", 72", 84" and 96" I.D. Manhole - I	MAN-03
60", 72", 84" and 96" I.D. Manhole - II	MAN-04
Standard Precast Concrete Manhole III 60", 72", 84", and 96" I.D.	MAN-05
Special Acid-Resistant Lining All Manholes	MAN-06
1' - 4" Cone (Type 1)	MAN-07
Standard Eccentric Cone	MAN-08
Standard Invert Details	MAN-09
Standard Drop Connection	MAN-10
Standard Manhole Frame & Cover	MAN-11
Watertight Manhole Frame & Cover	MAN-12
Standard Valve Manhole 16" and Larger)	MAN-13
Typical Manhole Step	MAN-14
1' - 4" Flat Top Cone (Type 2)	MAN-15
Standard Drop Connection (Inside)	MAN-16
Sampling Manhole	MAN-17

METER INSTALLATIONS

Typical Water Meter Connection for 3/4" & 1" Services (5/8" and 1" Meters)	MET-01
Plastic Meter Box (5/8" Meters)	MET-02

DEPARTMENT OF PUBLIC UTILITIES



NOTES:

- WHERE THE PUBLIC MAIN EXISTS, ALL WORK SHALL BE PERFORMED BY THE COUNTY UTILITIES DEPARTMENT UPON MAKING PROPER APPLICATION FOR SERVICE.
- ON ALL NEW WATER MAINS, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL, UP TO THE BALL VALVE AND WATER METER BOX, THE NECESSARY FIRE/DOMESTIC SERVICE COMBINATION, PLUS ANY OTHER REQUIRED SERVICES I.E., IRRIGATION, ETC.
- WHERE FIRE LINE TO BUILDING IS 100' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL OR IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING, FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- WHERE THIS DETAIL FOR A 2" COMBINED FIRE/DOMESTIC WATER LINE DOES NOT PROVIDE ADEQUATE SERVICE BECAUSE OF THE METER SIZE AND/OR AVAILABLE WATER PRESSURE, THE FIR-1A MAY BE USED.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEADLESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

(100 FEET OR LESS)

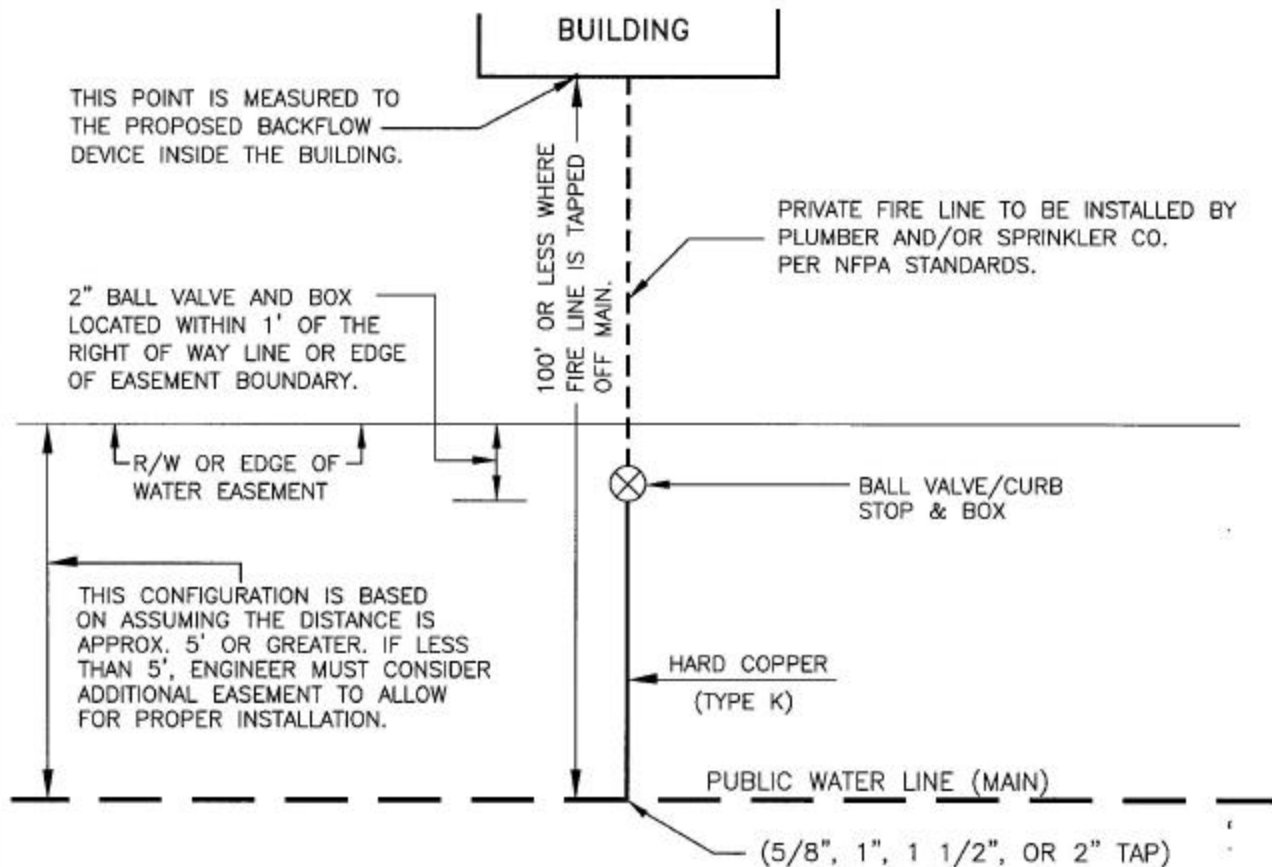
DATE:
JAN. 1996

REVISIONS:
DEC. 2003

TYPICAL PLAN VIEW OF PROPOSED 2"
OR SMALLER FIRE LINE SYSTEMS
FOR NON SINGLE FAMILY RESIDENTIAL
(WITH DOMESTIC SERVICE LINE)

DRWG. NO.
FIR-1
(1 of 2)

DEPARTMENT OF PUBLIC UTILITIES



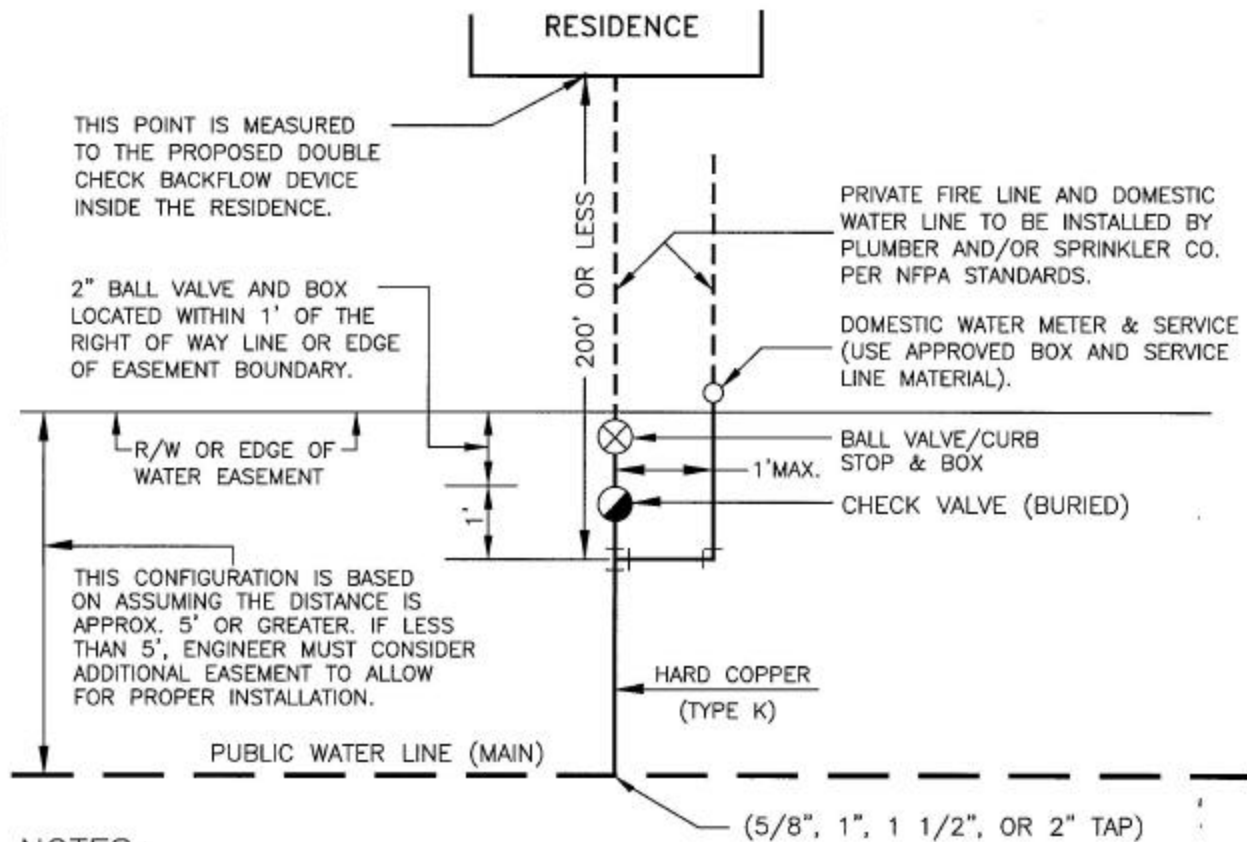
NOTES:

- WHERE THE PUBLIC MAIN EXISTS, ALL WORK SHALL BE PERFORMED BY THE COUNTY UTILITIES DEPARTMENT UPON MAKING PROPER APPLICATION FOR SERVICE.
- ON ALL NEW WATER MAINS, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL A SINGLE FIRE LINE UP TO THE BALL VALVE AND WATER METER BOX.
- WHERE FIRE LINE TO BUILDING IS 100' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL OR IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING, FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEADLESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

(100 FEET OR LESS)

DATE JAN. 2003	TYPICAL PLAN VIEW OF PROPOSED 2" OR SMALLER FIRE LINE SYSTEMS FOR <u>NON</u> SINGLE FAMILY RESIDENTIAL (WITHOUT DOMESTIC SERVICE LINE)	DRWG. NO. FIR-1 (2 of 2)
REVISIONS DEC. 2003		

DEPARTMENT OF PUBLIC UTILITIES



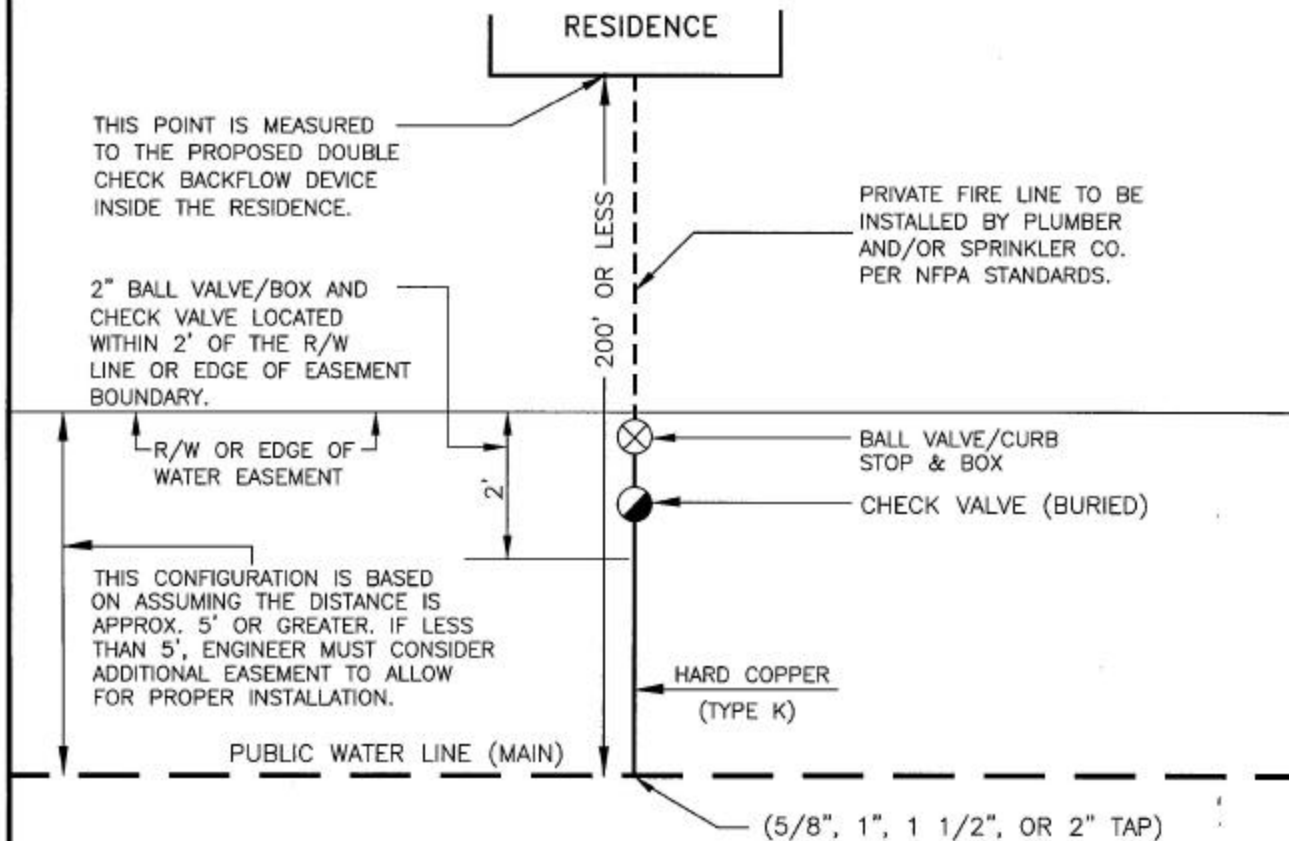
NOTES:

- A. ON ALL NEW WATER MAINS, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL, UP TO THE BALL VALVE AND WATER METER BOX, THE NECESSARY FIRE/DOMESTIC SERVICE COMBINATION, PLUS ANY OTHER REQUIRED SERVICES I.E., IRRIGATION, ETC.
- B. WHERE FIRE LINE TO BUILDING IS 200' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL OR IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING, FIR-2 DETAIL MUST BE USED.
- C. ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- D. USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- E. USE CHECK VALVES AS MANUFACTURED BY W.O.G. JENKINS; GRINNELL; OR APPROVED EQUAL.
- F. CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEAD LESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

(200 FEET OR LESS)

DATE DEC. 2003	TYPICAL PLAN VIEW OF PROPOSED 2" OR SMALLER SINGLE FAMILY RESIDENTIAL FIRE LINE SYSTEMS (WITH DOMESTIC SERVICE LINE)	DRWG. NO. FIR-1B NFPA 13D (1 of 2)
REVISIONS		

DEPARTMENT OF PUBLIC UTILITIES



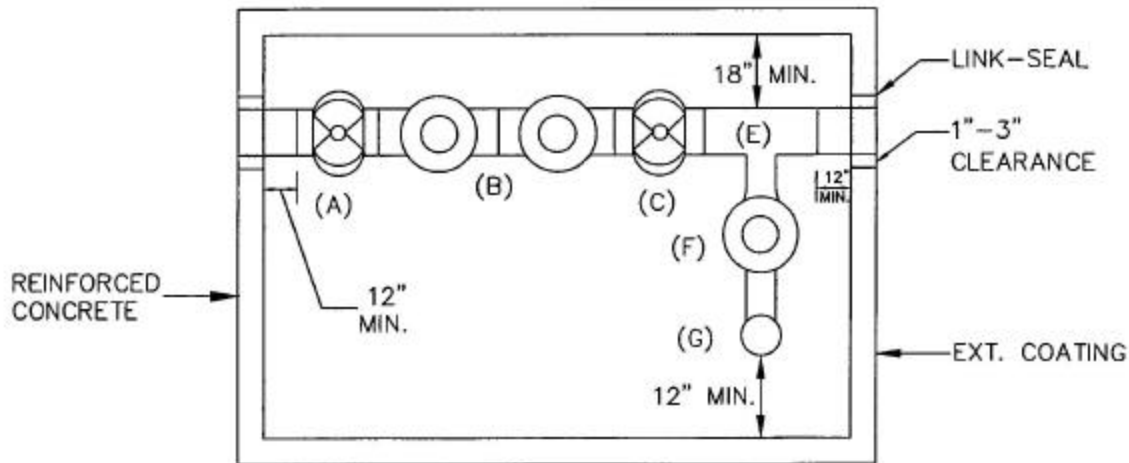
NOTES:

- ON ALL NEW WATER MAINS, DEVELOPER SHALL HAVE HIS UTILITY CONTRACTOR (ACCEPTABLE TO THE UTILITIES DEPARTMENT) INSTALL A SINGLE FIRE LINE UP TO THE BALL VALVE AND WATER METER BOX.
- WHERE FIRE LINE TO BUILDING IS 200' OR LESS FROM THE PUBLIC MAIN, THE FIRE LINE SYSTEM MAY BE INSTALLED ACCORDING TO THIS DETAIL OR IF THE OWNER CHOOSES TO HAVE THE DOUBLE-CHECK ASSEMBLY INSTALLED IN A VAULT OUTSIDE OF BUILDING, FIR-2 DETAIL MUST BE USED.
- ALL FIRE LINES MUST HAVE AT LEAST 3.5 FEET OF GROUND COVER.
- USE BALL VALVES AS MANUFACTURED BY FORD, McDONALD, OR APPROVED EQUAL.
- USE CHECK VALVES AS MANUFACTURED BY W.O.G. JENKINS; GRINNELL; OR APPROVED EQUAL.
- CONNECTIONS FOR 1 1/2" AND 2" FIRE LINE SERVICES WILL BE SWEAT 95/5 (LEAD LESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM.

(200 FEET OR LESS)

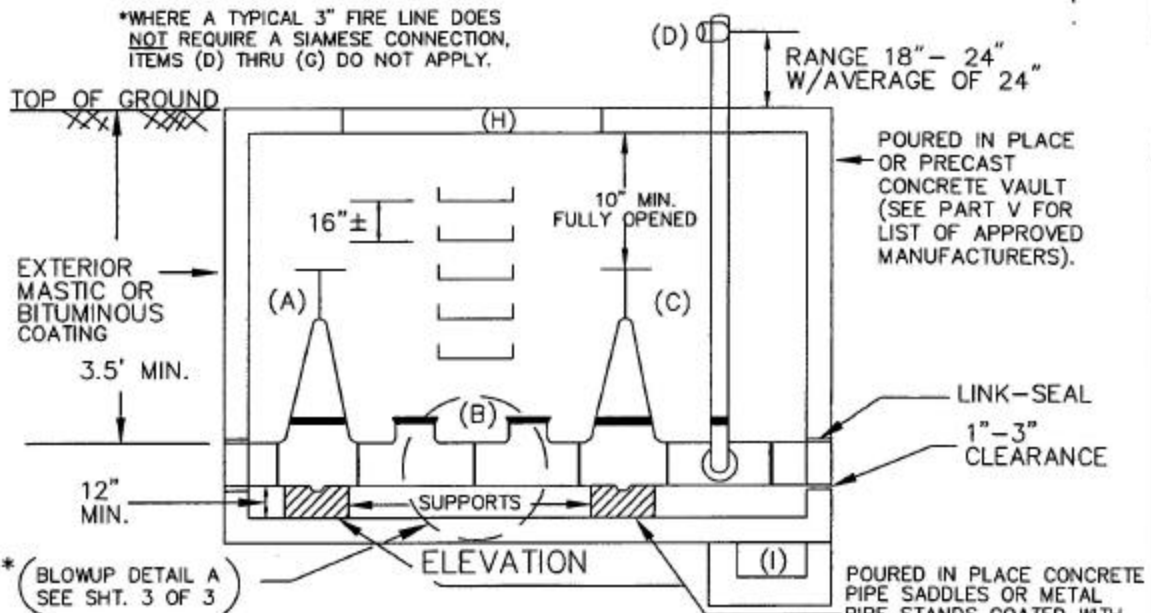
DATE DEC. 2003	TYPICAL PLAN VIEW OF PROPOSED 2" OR SMALLER SINGLE FAMILY RESIDENTIAL FIRE LINE SYSTEMS (WITHOUT DOMESTIC SERVICE LINE)	DRWG. NO. FIR-1B NFPA 13D (2 of 2)
REVISIONS		

CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES



PLAN

- (A) OUTSIDE STEM AND YOKE GATE VALVE
- (B) DOUBLE CHECK VALVE ASSEMBLY
- (C) OUTSIDE STEM AND YOKE GATE VALVE
- * (D) 2 1/2" THREADED N.S.T. SIAMESE CONNECTION FOR FIRE DEPARTMENT W/AUTOMATIC BALL DRIP
- * (E) REQUIRED (MAIN LINE SIZE) " X 4"
- * (F) 4" CHECK VALVE
- * (G) 4" - 90° BEND
- (H) JD-2AL 4' X 4' BILCO DOOR, OR AS MANUFACTURED BY VA. SPRINKLER COMPANY, OR APPROVED EQUAL.
- (I) SUMP WHERE WATER TABLE IS A PROBLEM OR GRAVITY DRAIN WHERE WATER TABLE IS NOT A PROBLEM.
- ** (J) BYPASS LINE W/DETECTOR METER & BACKFLOW PREVENTER



FOR ADDITIONAL INFORMATION ON REVIEW, DESIGN AND CONSTRUCTION, SEE PART IV, & PART V OF THE SPECIFICATIONS.

DATE:
JAN. 1996

REVISIONS:
DEC. 2003

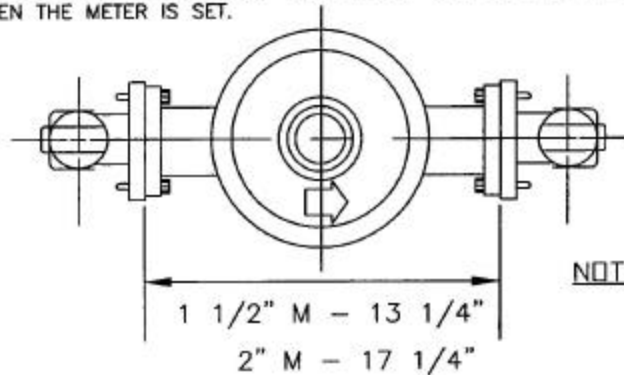
**3" OR LARGER
DOUBLE CHECK ASSEMBLY AND VAULT
(Alternate 1)**

DRWG. NO.
FIR-3
SHT. 1 OF 3

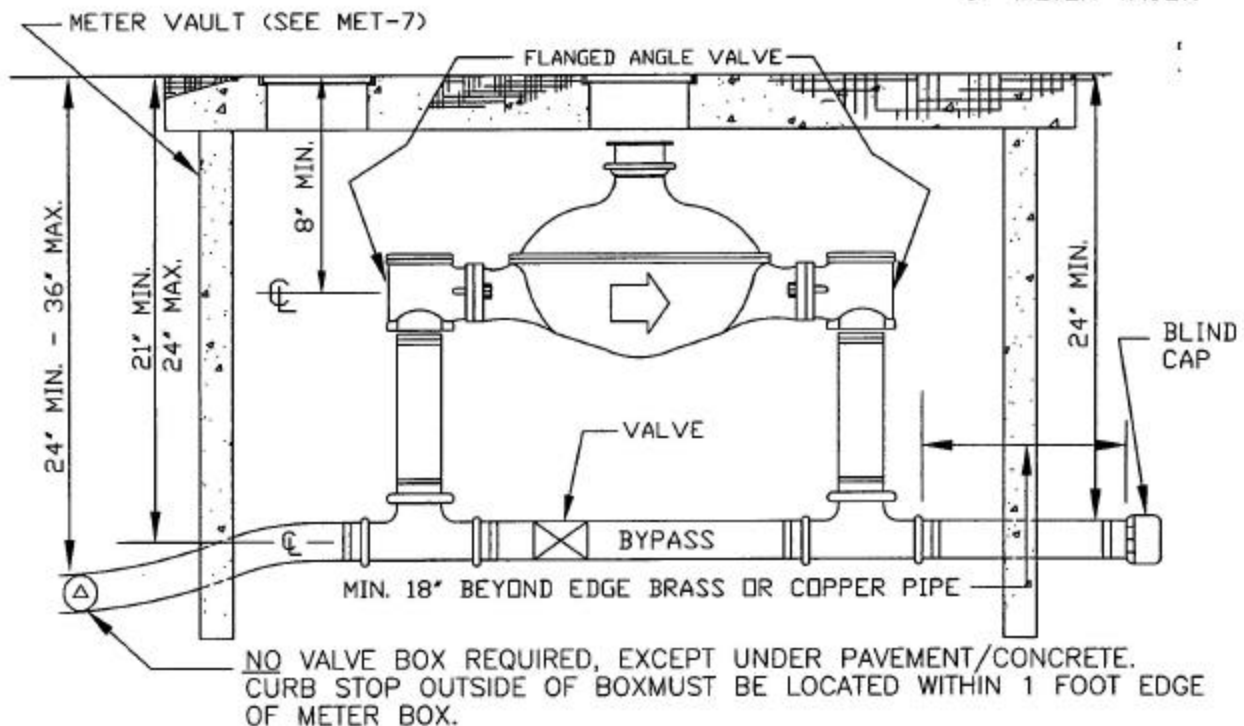
CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES

NOTES:

1. SADDLES SHALL BE USED FOR ALL 1 1/2" AND 2" TAPS.
2. WATER SERVICE LATERALS FOR 1 1/2" AND 2" SERVICES WILL BE TYPE-K HARD COPPER. CONNECTIONS FOR 1 1/2" AND 2" SERVICES WILL BE SWEAT 95/5 (LEADLESS) SOLDER AND A SUITABLE FLUX; APPROVED COMPRESSION FITTINGS; OR A ProPress SYSTEM. ALL CONNECTIONS AT CORPORATION STOPS WILL BE APPROVED COMPRESSION FITTINGS.
3. TAPS SHOULD BE MADE AT THE SPRING LINE OF THE MAIN LINE.
4. FOR DETAIL OF VAULT, SEE MET-7.
5. YOKE MUST BE INSTALLED WITH A METER SPACER THAT WILL BE FURNISHED TO THE CONTRACTOR BY THE UTILITIES DEPARTMENT INSPECTOR. THE SPACER WILL BE REMOVED BY THE UTILITIES DEPARTMENT WHEN THE METER IS SET.



NOTE: BYPASS SHALL BE LOCATED ABOVE OR AT FLOOR LEVEL OF METER VAULT.



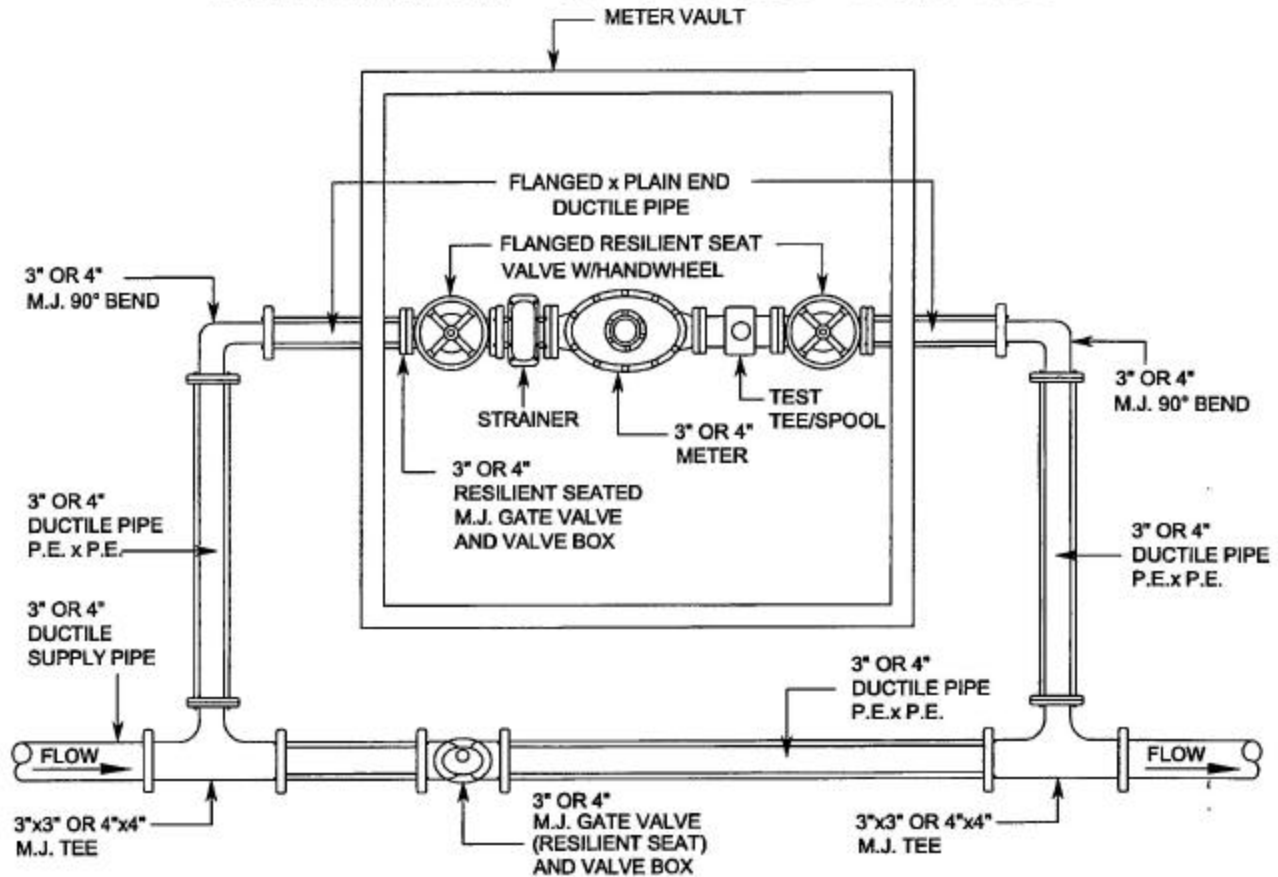
DATE:
JAN. 1996

REVISIONS:
DEC. 2003

1 1/2" OR 2" DISC METER SETTINGS

DRWG. NO.
MET-6

CHESTERFIELD COUNTY DEPARTMENT OF PUBLIC UTILITIES



PLAN VIEW

NOTES:

1. THE CONTRACTOR SHALL NOT INSTALL THE PIPING UNTIL THE METER AND ASSOCIATED APPURTENANCES HAVE BEEN PURCHASED FROM THE UTILITIES DEPARTMENT AND ARE ON THE PROJECT, SO THAT THE CORRECT LENGTH OF PIPE IS INSTALLED ACCORDING TO THIS DETAILED CONFIGURATION. STRAINER, METER AND TEST TEE ARE PROVIDED BY THE COUNTY.
2. CONTRACTOR IS REQUIRED TO COORDINATE WITH THE UTILITY DEPARTMENT OPERATION CENTER, THE PICK UP OF A COUNTY APPROVED METER. ALL CONNECTION FEES AND/OR OTHER APPLICABLE CHARGES OR FEES MUST BE PAID PRIOR TO PICKING UP THE WATER METER, TEST TEE AND STRAINER FROM THE UTILITIES DEPARTMENT.
3. 3" OR 4" APPROVED JOINT RESTRAINT DEVICES ARE REQUIRED ON ALL MECHANICAL JOINT (M.J.) CONNECTIONS. ALL FITTINGS SHALL BE MECHANICAL JOINT.
4. ALL FITTINGS INSIDE OF THE VAULT SHALL BE FLANGED.
5. NO CHECK VALVE OR PRV IS ALLOWED ON THE INLET SIDE OF THE METER.
6. FOR DETAILS OF VAULT, SEE MET-9 AND MET-10.

DATE
JAN. 1996

REVISIONS
DEC. 2003

3" OR 4" METER SETTING

DRWG. NO.

MET-8

CERTIFICATION OF NON-COLLUSION

My signature below certifies that the accompanying Bid is not the result of or affected by, any act of collusion with another person or company engaged in the same line of business or commerce, or any act of fraud punishable under Title 18.2, Chapter 12, Article 1.1 of the Code of Virginia, 1950, as amended. Furthermore, I understand that fraudulent and collusive bidding is a crime under the Virginia Governmental Frauds Act, the Virginia Government Bid Rigging Act, the Virginia Anti-Trust Act, and Federal Law and can result in fines, prison sentences, and civil damage awards.

I agree to abide by all conditions of this Bid and certify that I am authorized to sign this Bid. Failure to sign and return this page will be cause for rejection of bid.

Complete Legal
Name of Bidder: _____

Address: _____

Signature: _____

 ↙ ↘
(Type or Print Name)

Title: _____

Date: _____

Telephone # _____ Fax # _____

Federal I.D. No.: _____

We hereby provide the following information to Chesterfield County regarding our business. We understand that it is provided for statistical purposes only and all firms submitting proposals will receive equal consideration.

Minority Business Enterprise: Yes _____ No _____

Woman-Owned Business: Yes _____ No _____

Chesterfield Business: Yes _____ No _____

4.	Cambridge Brass 1½"	202-H6H6	202-F6F6
	Cambridge Brass 2"	202-H7H7	202-F7F7

F. Vaults, Precast Concrete - Requirements and configurations as shown on plans. (For other approved vaults, see "Water Meter Boxes" under Section 1).

1. Americast
2. Elite Fire Protection, Inc.
3. Tindall Vaults
4. Clear Flow Company
2. M&B (Model MB1500BF/WM with only the Ames 2000 series backflow device and Fire Protection Check Valve - Fig. 590F as manufactured by Grooved Sprinkler Company).

G. Tapping Sleeve - Sleeves must conform to County's latest application instructions as specified in Section 4 entitled Materials Specifications.

1. **(Fabricated Steel Sleeves)** with Epoxy Coating and Stainless Steel Bolts and Nuts
 - a. Smith Blair (Rockwell Product) #622 (4"-30")
 - b. J.C.M. Industries #412 ESS (4"-48")
 - c. ROMAC # FTS 420 SS (4"-30")
 - d. Ford FTSC (4"-30") w/SS bolts
2. **(Stainless Steel Sleeves)**
 - a. Power Seal - Model 3480 AS and 3480 MJ (6"-24")
Model 3490 AS and 3490 MJ (6"-24")
 - b. ROMAC SST and SST III (6"-24")
 - c. Ford FAST (6"-24")
 - d. Cascade - Model CST-EX (4"- larger)
Model CST-SL (4"-24")
 - e. JCM Model 432 (6"-24")
 - f. Mueller H304 (6"-24")
 - g. Dresser Style 630 (6" - 12")
 - h. Smith-Blair Models 662 & 663 (4"-20")
 - i. Smith-Blair Model 622 MJ (4"-20")
 - j. Mueller H300 (Not to be used on Asbestos Cement and Cast Iron Pipe)

2. Hi-Density Polyethylene Plastic Box (for 5/8" and 1" water meters and assemblies only in areas not subject to vehicular traffic):
 - a. Mid-States Plastics' meter box (for 5/8" water meters)
MSBC1015-24-RL with cast iron cover and reader lid
 - b. Mid-States Plastics' meter box (for 1" water meters)
MSIBC1118-26-RL with ductile iron cover and reader lid
3. Cast Iron Box (for 5/8" water meters and assemblies only in areas subject to vehicular traffic):
 - a. Capitol Foundry Design # MBX-10 and MBX-11

N. Valve Boxes (Slip Type Only)

1. SIGMA
2. Bingham and Taylor
3. Capitol Foundry
4. Star Pipe

O. Copper Tubing - (as manufactured for domestic use)

1. Type "K" (soft) - for 3/4" and 1" service lines
2. Type "K" (hard copper only) - for 1 1/2" and 2" service lines

P. Service Saddles

1. ROMAC - Style 202N with Stainless Steel Strap
2. Smith-Blair (Rockwell) SB 317 - (with Double Stainless Steel Straps)
3. Ford FS 202 Series, with cc Threads
4. JCM 404 (with Double Stainless Steel Straps)
5. PowerSeal Model No. 3417 (with double straps)

6. Cascade - Styles CNS2 (for 12" and smaller pipe), CBS2 (for 12" and smaller pipe), and CDSLD (large diameter saddles for 16" and larger pipe)
7. Mueller - Models DB2S & DE2S (with double straps for 2"-12")

Q. Pipe Restraints (must be UL Listed and FM Approved)

1. For PVC Pipe (Sizes up to 12")
 - a. Megalug Series 2000 PV (PVC Pipe - MJ Fittings)
Megalug Series 1500 (PVC Bell and Spigot Joints)
 - b. Romac Style 611 (PVC Bell and Spigot Joints)
 - c. Uni-Flange Series 1390-C (PVC Bell and Spigot Joints)
Uni-Flange Series 1500 (PVC Pipe - MJ Fittings)
 - b. STARGRIP Series 3600 (PVC Pipe - MJ Fittings)
 - f. AquaGrip Intergral Restraint System for use on the Centurion Fire Hydrants and Mueller RS Valves
 - g. SIGMA One-Lok Model SLC
2. For Ductile Iron Pipe -
 - a. Megalug 1100 Series (MJ Fittings) All Sizes
 - b. Uni-Flange Series 1400 Block Buster Wedge Action Retainer Glands (MJ Fittings) Sizes 4"-24"
 - c. Uni-Flange Series 1390-C (Bell and Spigot Joints) Sizes 6"-16"
 - d. STARGRIP Series 3000 (MJ Fittings) Sizes 4"-24"
STARGRIP Series 3600 (MJ Fittings) Sizes 4"-12"
 - e. RomaGrip Sizes 4"-12"
 - f. SIGMA One-Lok Model SLD (MJ Fittings) Sizes 4"-36"

R. Markers

1. For All Types of Pipes

- a. 66" Carsonite White Utility Marker Post with two (2) factory applied decals (#CW-112 or #CWV-116, whichever is applicable; and Stock #P-101 decal)
- b. Greenline Markers - Model #'s FLU1WH66 and DSU1WH66 with factory applied decals 159A, 029A or 094A, whichever is applicable in Chesterfield County.

S. Flushing Hydrants

1. Gil Industries 2" Aquarius "One-O-One" HH (Chesterfield Type)
2. Kupferle 2" Main Guard Model #78 (Chesterfield Type)

T. Double Check and Double Detector Check Devices (U.L. classified or F.M. Approved, AWWA compliant and ASSE listed 1015 for DC's and 1048 for DDC's)

<u>Manufacturer</u>	<u>Model #'s</u>	<u>Size</u>
Ames Co., Inc.	2000SS	4" - 10"
	2000DCA	4" - 8"
	2000SE	8"
	3000SS	4" - 10"
	3000DCDA	4" - 10"
	3000SE	8"
	200A Colt Series 2½"	- 10"
	300A Colt Series 2½"	- 10"
Cla-val Co.	D	2" - 10"
	16DDC	3" - 10"
Conbraco Industries, Inc.	40-10A	4"
	4060A02	4"
	4060C02	6"
	40-10C	6"
	4010E02	8"
	4010G02	10"
	4S100	2½" - 6"
	40100	2½" - 10"

Febco	805 YD	3" - 10"
	806 YD	3" - 10"
	850	2½" - 8"
	856	2½" - 8"
	870 (V)	2½" - 10"
	876 (V)	2½" - 10"
Hersey Products	DDC11	3" - 10"
	No. 2	3" - 10"
	FDC	¾" - 2"
	HDC	¾" - 2"
Watts Regulator Co.	700	3" - 4"
	709	3" - 10"
	709DCDA	3" - 10"
	770DCA	4" - 10"
	770DCDA	4" - 10"
	007	½" - 3"
	007DCDA	2" - 3"
Zurn Industries, Inc. (Wilkins)	550	3" - 6"
	MX-550	6" - 10"
	MX-DCDA	6" - 10"
	350	2½" - 6"
	350DA	4" - 6"
	450	4" - 6"
	450DA	4" - 6"
	950	2½" - 10"
	950 LF	¾" - 4"
	950 DA	2½" - 10"
	950 XL	¾" - 2"

U. Reduced-Pressure Principle Zone Devices (U.L. classified or F.M. approved, AWWA compliant and ASSE listed 1013)

<u>Manufacturer</u>	<u>Model #'s</u>	<u>Size</u>
Ames	4000 RP	4" - 10"
	4000 SS	3" - 10"
Cla-val Co.	RP-2	¾" - 1½"

Conbraco Industries, Inc.	40-200	3"	
	40-20A	4"	
	40-20C	6"	
	4020E02	8"	
	4020G02	10"	
	40200	2½"	- 10"
Febco	6C-M	3"	- 10"
	FRPII	¾"	- 1½"
	825 D & YD	3"	- 10"
	860	2½"	- 8"
	880 (V)	2½"	- 10"
Hershey Products, Inc.	6	4"	- 10"
	6C	4"	- 10"
Watts Regulator Co.	900	3"	- 6"
	909	3"	- 10"
	009RP		3"
Zurn Industries, Inc. (Wilkins)	375	2½"	- 6"
	375DA	4"	- 6"
	475	4"	- 6"
	475V	4"	- 6"
	975	2½"	- 10"
	975DA	2½"	- 10"

V. Casing Spacers

1. Cascade
2. Advance Model SSI
3. PSI Model No. C8G-2
 Model No. C12G-2
4. Power Seal Model No. 4810

W. Lubricants

1. Blue Lube
2. Slikstyx (new product formulation only)

X. Water Sampling Stations

1. GIL # EH101

Y. Valve Key Extensions

1. Chesterfield Model (See Detail in Part II of this manual)

SECTION 3: MANUFACTURER'S ADDRESS LIST

A. WATER SYSTEMS

PVC PIPE 6", 8" and 12"

MANUFACTURERS:

C-900	1.	Certainteed Corporation P.O. Box 860 Valley Forge, PA 19482	(610) 341-7000 FAX (610) 341-6837
C-900 or C-909	2.	PW Eagle, Inc. (formerly Uponor ETI Company) P.O. Box 709 Buckhannon, WV 26201	(800) 624-3111 FAX (304) 472-0742
C-900	3.	J-M Manufacturing Co., Inc. 9 Peach Tree Hill Road Livingston, NJ 07039	(201) 535-1633
C-900	4.	IPEX, Inc. (firmly Scepter-Canron) 2441 Royal Windsor Drive Mississauga, Ontario Canada L5J4C7	(800) 463-9572 FAX (905) 403-9195
C-900	5.	Diamond Plastics Corporation 1212 Johnstown Road P.O. Box 1608 Grand Island, NE 68802	(308) 384-4400 FAX (308) 384-9345
C-900	6.	North American Pipe Corporation 200 Park Place Booneville, MS 38829	(601) 728-2111 FAX (601) 728-3135
C-900	7.	National Pipe & Plastics, Inc. 9609 Old Highway 421S Colfax, N.C. 27235	(800) 866-0149 FAX (336) 996-1755
C-900	8.	Bristolpipe A Heywood Williams Company 601 County Road 17 P.O. Box 1868 Elkhart, IN 46515	(800) 348-7671 (219) 295-4515 FAX (800) 272-7044

B. SANITARY SEWER SYSTEMS

PIPE: PVC SDR-35 (SIZES 6", 8", 10" 12" AND 15") ASTM D3034 SDR 35

MANUFACTURERS:

ASTM D3034	1.	Certainteed Corporation P.O. Box 860 Valley Forge, PA 19482	(610) 341-7000 FAX (610) 341-6837
ASTM D3034	2.	PW Eagle, Inc. (formerly Uponor ETI Company) P.O. Box 709 Buckhannon, WV 26201	(800) 624-3111 FAX (304) 472-0742
ASTM D3034	3.	J-M Manufacturing Co., Inc. (J.M.) 9 Peach Tree Hill Road Livingston, NJ 07039	(201) 535-1633
ASTM D3034 ASTM F1760	4.	IPEX, Inc. (firmly Scepter-Canron) 2441 Royal Windsor Drive Mississauga, Ontario, Canada L5J4C7	(800) 463-9572 FAX (905) 401-9195
ASTM D3034	5.	Diamond Plastics Corporation 1212 Johnstown Road P.O. Box 1608 Grand Island, NE 68802	(308) 384-4400 FAX (308) 384-9345
ASTM D3034	6.	North American Pipe Corporation (NAPCo) 200 Park Place Booneville, MS 38829	(601) 728-2111 FAX (601) 728-3135
ASTM D3034	7.	Bristolpipe A Heywood Williams Company 601 County Road 17 P.O. Box 1868 Elkhart, IN 46515	(800) 348-7671 (219) 295-4515 FAX (800) 272-7044
ASTM D3034	8.	National Pipe & Plastics, Inc. 9609 Old Highway 421S Colfax, N. C. 27235	(800) 866-0149 FAX (336) 996-1755

PIPE: PVC SDR-35 (Sizes 18"-48") ASTM F679

MANUFACTURERS:

1. Certainteed Corporation (610) 341-7000
P.O. Box 860 FAX (610) 341-6837
Valley Forge, PA 19482
2. Condux Pipe Systems (507) 387-2284
P.O. Box 789
Mankato, MN 56002
3. J-M Manufacturing Co., Inc. (201) 535-1633
9 Peach Tree Hill Road
Livingston, NJ 07039
4. North American Pipe Corp. (601) 728-2111
200 Park Place FAX (601) 728-3135
Booneville, MS 38829
5. National Pipe & Plastics, Inc. (800) 866-0149
9609 Old Highway 421S FAX (336) 996-1755
Colfax, N. C. 27235

PIPE: ULTRA-RIB PVC (21"-36") ASTM F794

MANUFACTURERS:

1. PW Eagle, Inc. (800) 624-3111
(formerly Uponor ETI Company) FAX (304) 472-0742
P.O. Box 709
Buckhannon, WV 26201

PIPE: PERMA-LOC, PVC (21"-36") ASTM F794 Series 46

MANUFACTURERS:

1. J-M Manufacturing Co., Inc. (201) 535-1633
9 Peach Tree Hill Road
Livingston, NJ 07039

PIPE: CARLON VYLON H.C. (21"-48") ASTM F794

MANUFACTURERS:

1. Carlon, A Lamson & Sessions Company (216) 831-4000
25701 Science Park Drive (800) 321-1970
Cleveland, OH 44122 FAX (216) 831-3208

PIPE: ULTRA-CORR (24"-36") ASTM F794

MANUFACTURERS:

1. PW Eagle, Inc. (800) 624-3111
(formerly Uponor ETI Company) FAX (304) 472-0742
P.O. Box 709
Buckhannon, WV 26201

PIPE: CONCRETE

MANUFACTURERS:

1. Hanson Pipe & Products, Inc. (800) 309-1202
2900 Terminal Avenue (804) 233-5471
Richmond, VA 23234-1632 FAX (804) 232-1213
2. Hydro Conduit Corporation (919) 475-1371
208 Randolph Street, P.O. Box 818
Thomasville, N.C. 27360-0818

FITTINGS: PVC SDR-35 gasketed sewer fittings

MANUFACTURERS:

- | | | |
|----|---|--|
| 1. | Head Manufacturing, Inc.
640 South Highway 91
Preston, ID 83263-9738
(Formerly Certainteed Corp. Fittings) | (208) 852-2000
FAX (208) 852-2003 |
| 2. | J-M Manufacturing Co., Inc.
9 Peach Tree Hill Road
Livingston, NJ 07039 | (201) 535-1633 |
| 3. | Vassallo, Inc.
P.O. Box 567
State Route 60 West
Lake Wales, FL 33853 | (813) 676-7975
(800) 237-6215
FAX (813) 676-0216 |
| 4. | The Harrington Corporation (HARCO)
P.O. Box 10335
Lynchburg, VA 24506 | (804) 845-7094 |
| 5. | Multi-Fittings, Inc.
731 Langco, Suite 101
Richardson, TX 75281 | (800) 344-5819 |

Cast Iron with Mechanical Joint Ends:

- a. The body and glands of the tapping sleeve shall be of ASTM-126, Class B cast or ductile iron. Sleeve shall be furnished complete with all mechanical joint accessories (bolts, nuts, gaskets and glands), and shall have a bituminous seal coating.
- b. Valve flange, body gaskets and clamping hardware (bolts, nuts and washers) shall be as specified for the fabricated steel tapping sleeve.

Tapping Sleeve Applications

- a. The use of tapping sleeves and valves on the County water system will be considered where it can be shown that installation of a tee and line valve on the existing water main will not be beneficial to the County.
- b. The stainless steel, fabricated steel (with mechanical joint ends), or cast/ductile iron (with mechanical joint ends) tapping sleeves may be used for any approved tap on C-900 PVC or ductile iron water main.
- c. The stainless steel or fabricated steel (with mechanical joint ends), or cast/ductile iron (with mechanical joint ends) tapping sleeves may be used for all approved taps on asbestos-cement pipe (except 16" size) and for size-one size or one size down taps on all other pipe material.
- d. Due to the non-availability of the mechanical joint tapping sleeve for 16" asbestos-cement pipe, the stainless steel sleeve must be used for taps on this pipe.
- e. The fabricated steel tapping sleeve may be used for approved two (or more) size down taps on C-900 PVC, cast iron or ductile iron water main.
- f. Application Chart:

Taps	Size on Size	Cast Iron, Asbestos Cement, Transite	P.V.C	Ductile Iron
Type of Sleeve	Stainless Steel	***Stainless Steel	Stainless Steel	Stainless Steel
	Mechanical Joint	*Mechanical Joint	Mechanical Joint	Mechanical Joint
			**Fabricated Steel	**Fabricated Steel

* Except on 16" A/C pipe.

** Approved for use on 2 or more downsize taps only.

*** Mueller H300 can not be used on A/C and C.I. pipe.

- c. Meter yokes/setters shall be 3/4" for 5/8" meter with saddle nut. Inlet and outlet sides of meter setter shall be equipped with 3/4" flare or compression copper coupling.
- d. 3/4" Corporation stop with corporation cock thread inlet shall be those as specified in the approved materials list shown in Section 1 entitled Water System.
- e. Pipe shall be 3/4" type "K" copper domestic manufactured.
- f. Tail piece on yoke shall be 3/4" type "K" copper and be long enough to extend 18" outside of meter box.
- g. Service Saddles:
 - 1) All saddle castings must be ductile iron and meet the requirements of ASTM A-536-80, protected with epoxy or nylon coating.
 - 2) All saddles must have a minimum of two (2) 1 1/2" wide (including bolts) stainless steel straps type 304 (18-8) where welds are passivated for resistance to corrosion. Exception: Ford FS202 which has two (2) bolts and a single strap with a minimum width of 3 1/4".
 - 3) Gaskets must be made of Virgin NBR compound.
 - 4) Service saddles are required on all taps made onto PVC pipe.

10. Water Service Setter for 1", 1 1/2" and 2" Water Meters:

All Materials for the installation of water services shall be as follows or approved equal:

- a. The water meter box and cover (for use with all 1" meters) shall be as manufactured by Mid-States Plastics, Inc. for high density polyethylene boxes or approved equal. The boxes shall conform to the specifications as outlined under the "Water Meter Assembly for 5/8" Water Meters" and the dimensions as specified in the standard detail shown in Part II of this documents for 1" meters.